KO PROPO VFS-1 BMC
Professional — Brushless Motor Controller

VFS-1BMC Instruction Manual

Thank you for purchasing the VFS-1BMC. This manual describes the use of this speed controller (ESC) with a sensor equipped brushless motor used for the highest level of racing. In order to utilize the performance of this product, you must read this instruction manual.

Product Features

■Variable Frequency System PAT.
Possibility according to the throttle setting and motor drive frequency modification.
Modification of the setting which corresponds to the category and course layout is possible.

■ICS Interactive Communication System
It is possible to change configurations and parameters using a PC when used with the ICS USB adapter (sold separately).
1). Neutral brake setting. OFF~255 step adjustment.
2). Brake frequency. 52 step adjustment.
3). Battery Saving 3 setting modes; Li-PO, Ni-MH 5 - 6 cell mode and Ni-MH 4 cell adjustment.
4). VFS frequency configuration.(32Point 52Step 2.0KHz - 12.0KHz)

■Internal 5 model memory
The possibility of the product setup has become streamlined.
Only when using a PC operating on Windows and using the [ICS USB adapter] (No.61018).

■Overheat & Overcurrent Protection equipment
If you make a mistake in the setup of the motor, the pinion gear and power - the safety design will cut.

Technical Specifications

Corresponding Motor: Manufactured RC car sensor type brushless electric motors(Star Wire).
Control Method: PWM variable frequency system
Max Peak Current: 3120A (FET Specifications)
Max Continuous Current: 780A (FET Specifications)
Operating Input Voltage: 4.8-7.4V(Ni-cd,Ni-MH,Li-PO)
BEC Output Voltage: 6V
BEC Output Current: 2A(Instant maximum)
Drive Frequency: 32Point 52Step 2.0KHz - 12.0KHz
Brake Frequency: 52Step(500Hz - 2.5KHz)
Size: 33.4x37.0x16.8mm **Weight**: 30.8g
Operation: Forward / Brake
Recommended Motor Limit: 4.5 T (with heat sink and fan installed, 2.5 T)

Note to handling

⚠ **Warning!** ○This product is made and sold with the intent of use for land RC models.○Connect the receiver, servo and ESC securely. ○Do not use when you hear thunder, when it is raining or when there are puddles of water.○Do not use when judgement is hindered due to fatigue, consuming alcohol or under medication.○Store in a place where it is out reach from infants and children.○When not in use, disconnect the battery.○ Do not use where there are people on the road.

⚠ **Note!** ○Note sufficiently that you did not make a mistake in the polarity of the battery.○Only use our company's genuine products when connecting equipment and installing optional parts.○Turn on the transmitter power first→Then turn on the receiver→Control from the transmitter.○After the run, pay attention to the heat generation of motor, battery, ESC, etc.○ For the battery cord and the motor wire - etc., make sure they do not touch and short-circuit.○When setting up, remove the motor pinion.○If the product gets wet, discontinue use and send it in for repair.○Please do not subject this product to strong impacts.○Please note sufficiently the parts that are angular and pointed to prevent injury.○Resolution remodelling of the product may become a cause of a short or other accidents and there are times when we will refuse the acceptance of repair in our service department.

Wiring Procedure

Silicon wires are not included in VFS-1BMC. Please use our genuine fluorescent silicon wire (12/13GA) that we sell. If the wires are soldered in an opposite connection or insufficiently, a short may occur. When you make a mistake, the ESC will be damaged.

B −:To battery minus
To Motor terminal C **MC**
To Motor terminal B **MB**
To Motor terminal A **MA**
B +:To battery positive

Sensor wire connector
A sensor wire that is attached to a motor can be used.

Cooling fan connector
The world spec kit cooling fan (sold separately) can be installed.

1) Install the VFS-1BMC into the RC car with double-sided tape. Install it in a safe place to avoid an impact from a crash. Install the power switch in a place where the slide switch and button are easy to access.
2) The VFS-1BMC has soldering post where you must install the silicone wires with the use of solder. Following the inscriptions on the aluminum plate, MA, MB and MC are for the motor terminals; B+ and B- are for the battery plus and minus respectively. (Please note the polarity of the battery when connecting!)
3) As for servo lead coming from the ESC, connect it to 2CH of the receiver.
4) The sensor wire is installed in the sensor wire connector. VFS-1BMC will not operate unless the signal of the sensor wire is received.

Setup
○Please be sure to install the wiring before beginning.
○When configuring the ESC, please make sure that power is not delivered to the tires by removing the pinion from the motor.
○Before configuring, please set the transmitter (HIPOINT, BRAKEPOINT, ATV and EPA) to its default (factory default setting). To configure a KO transmitter for reset, simultaneously press the positive and negative buttons on the transmitter.
○If you have ABS and acceleration function in your transmitter, please set these functions to OFF.
○Unless the standard configuration is set, it will not operate correctly.

Standard configuration
The transmitter's; neutral, high point and brake point will be stored in the VFS-1BMC.

1 Configuration is performed with the operation of the power switch and the set button.

Power switch
Set button
LED
OFF ◀▶ ON
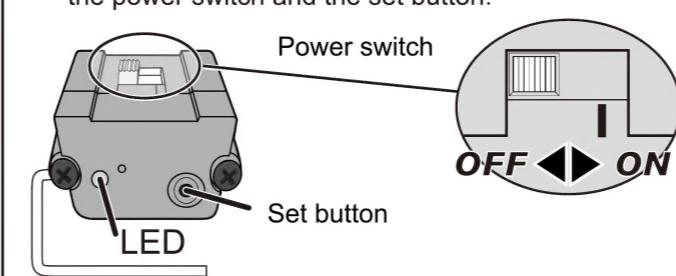
2 While pushing the set button, turn the power switch to ON. When LED lights up, the set button is released.
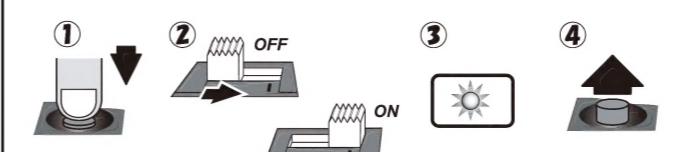
3 The LED will flash a pattern of 1 time. The throttle trigger should remain in the neutral position and press the set button once.
Press while at neutral.

4 The LED will flash a pattern of 2 times. Hold the throttle trigger to the full throttle position and press the set button once.
Hold full throttle and press.

5 The LED will flash a pattern of 3 times. Hold the throttle trigger to the full brake position and press the set button once.
Hold full brake and press.

Once the standard configuration is completed, the LED will stop flashing.

Model select
The VFS-1BMC can store up to 5 types of setups.

1 While pressing the set button, turn the power switch to ON. The LED will come on and then go out after approximately 3 seconds. After the LED goes out, release the set button. Upon completion, you are entered into the model selection mode.
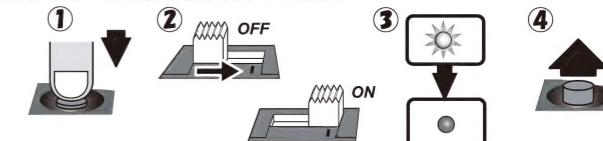
2 To change the model, press the set button. The number of flashes (1~5) will indicate model selected. The current model used is displayed with the frequency of the LED flashes. Factory shipment configuration is listed below.

☀	:1 time flashing Model 1 (Power)
☀ ☀	:2 times flashing Model 2 (Mild)
☀ ☀ ☀	:3 times flashing Model 3 (Smooth)
☀ ☀ ☀ ☀	:4 times flashing Model 4 (Touring Car)
☀ ☀ ☀ ☀ ☀	:5 times flashing Model 5 (Buggy)

Once the model is selected, turn the power off to store the selected model memory.

When this item is shipped, the factory settings are configured. Depending upon the motor and battery used, the highest performance will be achieved when modified with the ICS.
To modify the configuration with the ICS, "the ICS USB adapter" (No.61018) which is sold separately will be required. You can download the latest version of the software for configuration from our company's home page.
You can download from our company's home page the configuration data.

About cooling
When installing the "world spec kit" that is sold separately (No.45521), the over-current and high power motors that could not be used previously can now be used. This is very effective with modified Touring and 4wd buggy cars.

Installation Technique
1). The heat sink is attached to the aluminum plate (gold) of the VFS-1BMC using the double-sided tape.
2). The cooling fan is installed with the supplied screws onto the heat sink.
3). The connector of the cooling fan is connected to the BMC.
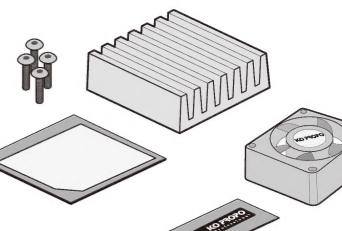
Repair inquiry
Our WebSite http://www.kopropo.co.jp

○**When you believe that you have had a breakdown...**
Please inspect and reread this instruction manual again.
When you do not understand something, please contact our service department.
When consulting our service department, please inform them about the status of breakdown in as much detail as possible.

☐The model of the transmitter, RC car, motor and battery.
☐When it broke down, the usage condition status and content.
☐Customer name, address and contact information.

○**When a repair is requested, please include the above mentioned contents when sending in the repair.**
○**Please prepay the postage for all items sent to us for repair.**

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